

NapaSan's AC Pipe Bursting Project as Approved by the Bay Area Air Quality Management District August 19, 2021 – 10 am

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**B A C W A
BAY AREA
CLEAN WATER
AGENCIES**

Agenda

- ***History of asbestos***
- Pipe bursting
- National Emissions Standards for Hazardous Air Pollutants
- NapaSan Bay Area Air Quality Management District Compliance Procedure

History of Asbestos

Naturally occurring mineral fiber
Attractive attributes

- Fire and chemical resistance
- Flexible, long, thin fibrous shape
- High strength



Use noted as early as Ancient Greece

Use of asbestos supported nationwide during the
early 20th century

Navy was #1 consumer of asbestos during the first
half of the 20th century

Knowledge of inhalation dangers solidified by 1950's

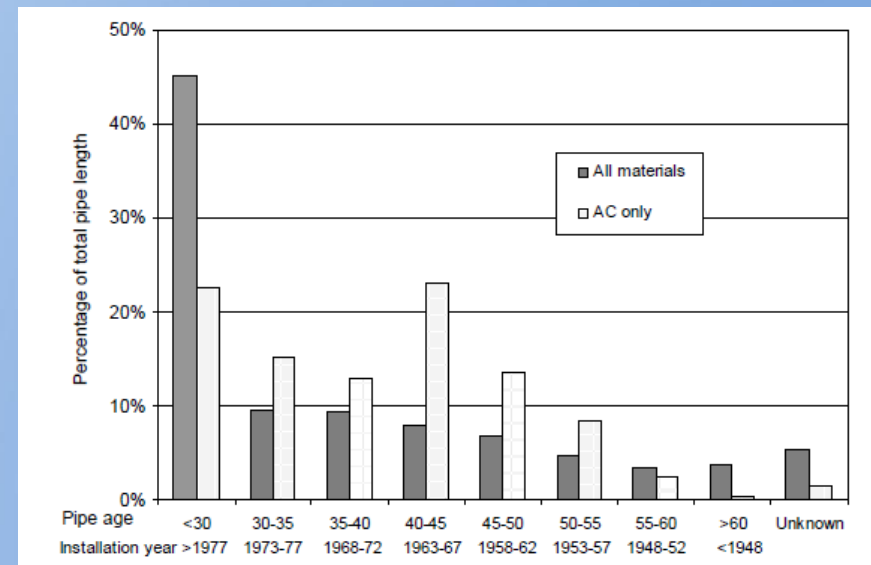
Manufactured Products Containing Asbestos

- Fibrous insulation - **#1 health hazard**
 - Sprayed in, blown in and electrical
- Roofing Shingles
- Floor and Ceiling tiles
- Brake pads
- Paints, plasters, mastics, adhesives & tape
- Gaskets
- Packing materials
- Fire blankets and curtains
- Boiler insulation – US Navy
- Asbestos cement pipe



History of AC pipe

- Mechanism for incorporating asbestos fibers in cement created in Genoa, Italy 1913
- Brought to the US in 1929 by Johns-Manville Corporation
- Commonly installed in from the 1940's – 1970's
- “Centennial pipe”



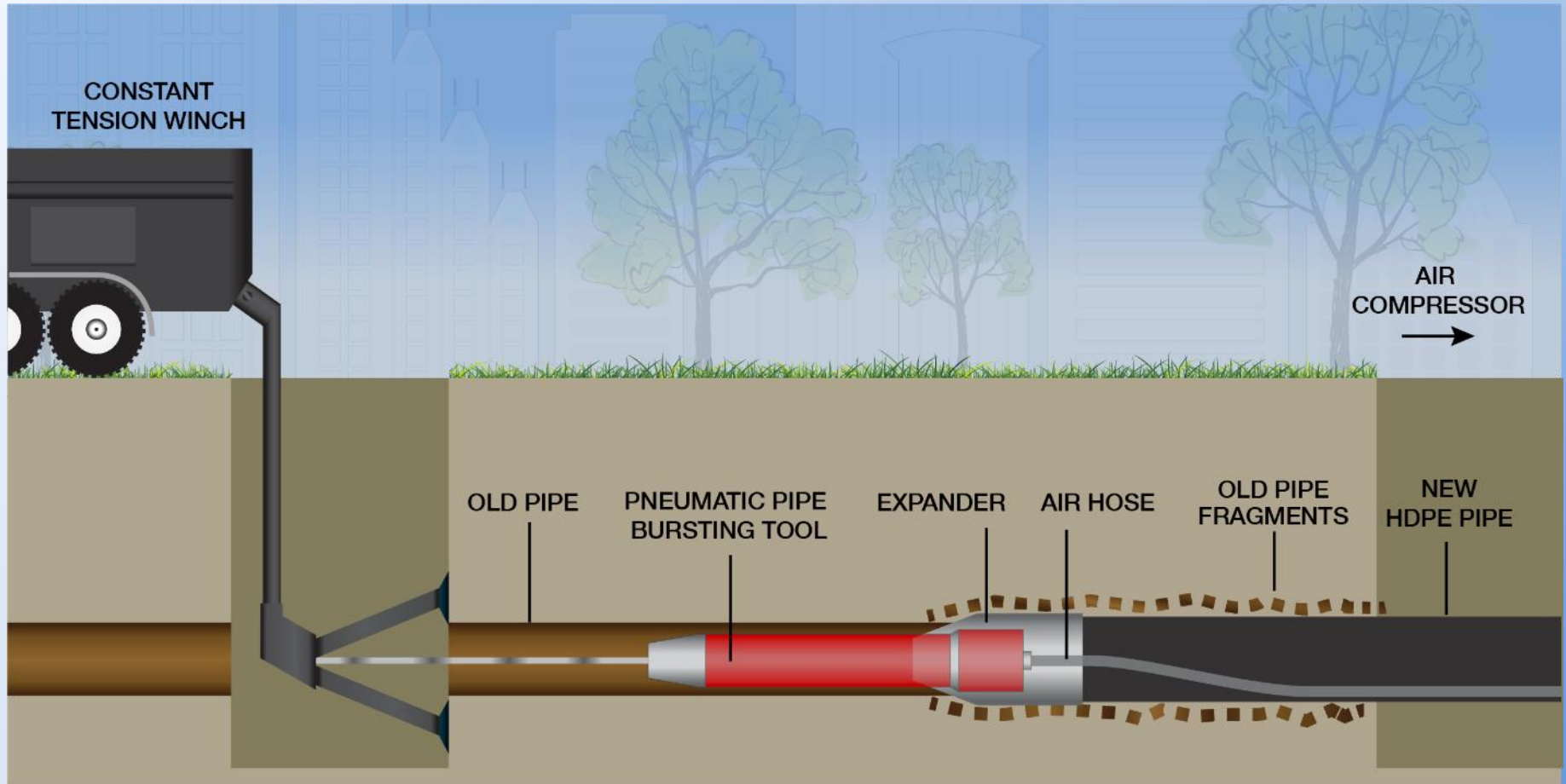
Amount of Installed AC pipe: Napa Sanitation District

- Estimates upwards of 600,000 LF of AC pipe installed in the collection system
- Traditional open cut construction and removal of the AC pipe can cost \$450,000,000 at \$750 per LF
 - Often involves major roadway restoration
 - Includes removal and disposal of AC pipe
- Pipe bursting of the existing AC pipe could cost \$81,000,000 at \$135 per LF
 - 85% less excavation avoids major roadway restoration
- Substantial cost savings over life of program

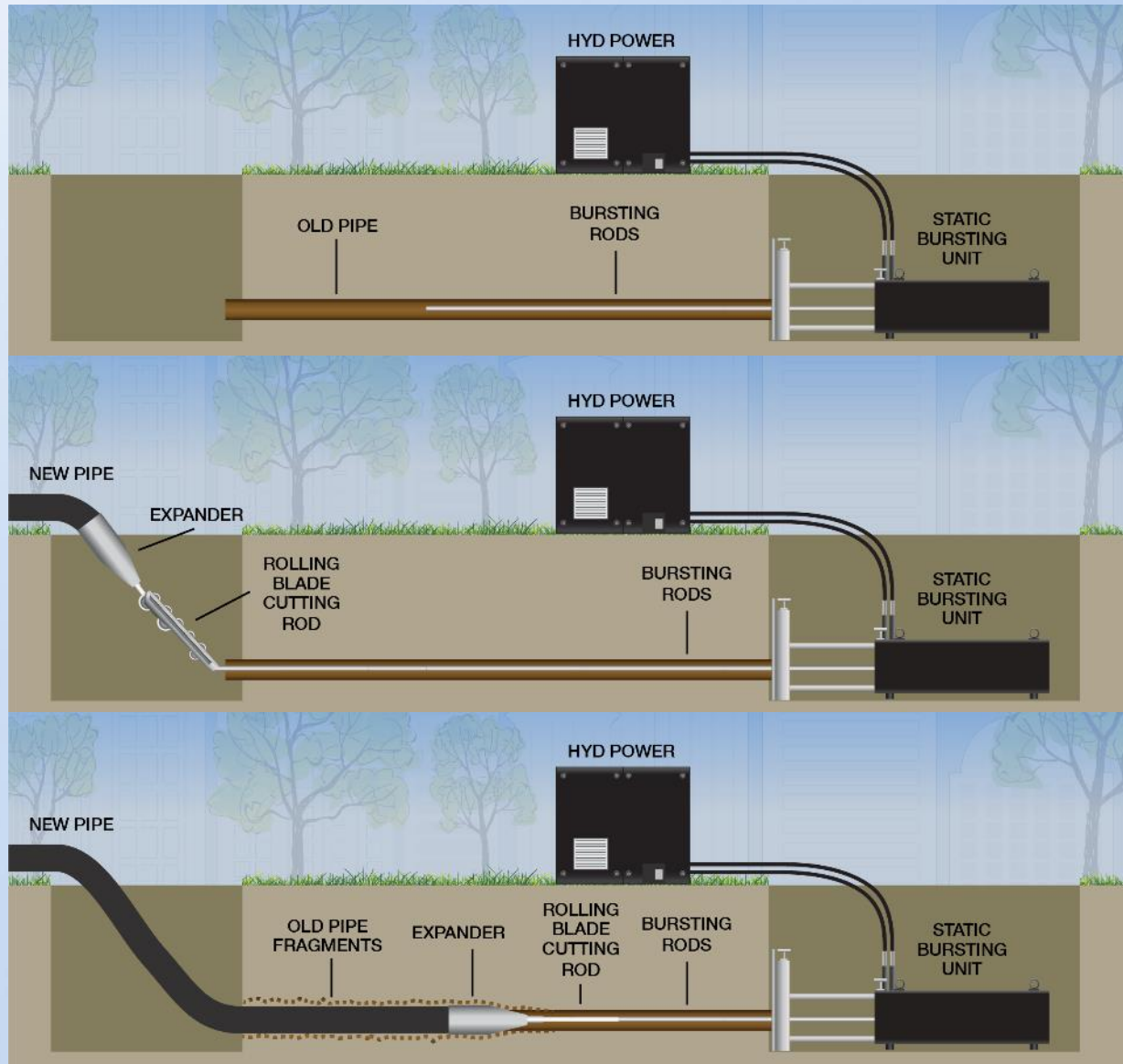
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Pneumatic Pipe Bursting

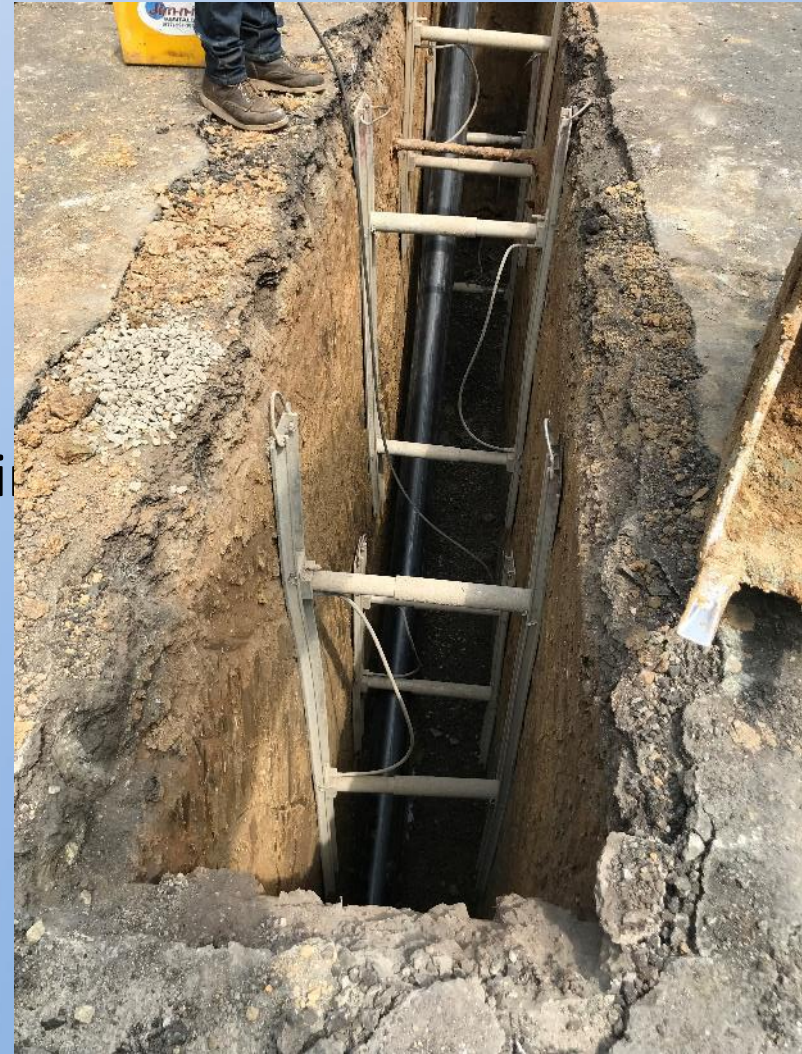


Static Pipe Bursting



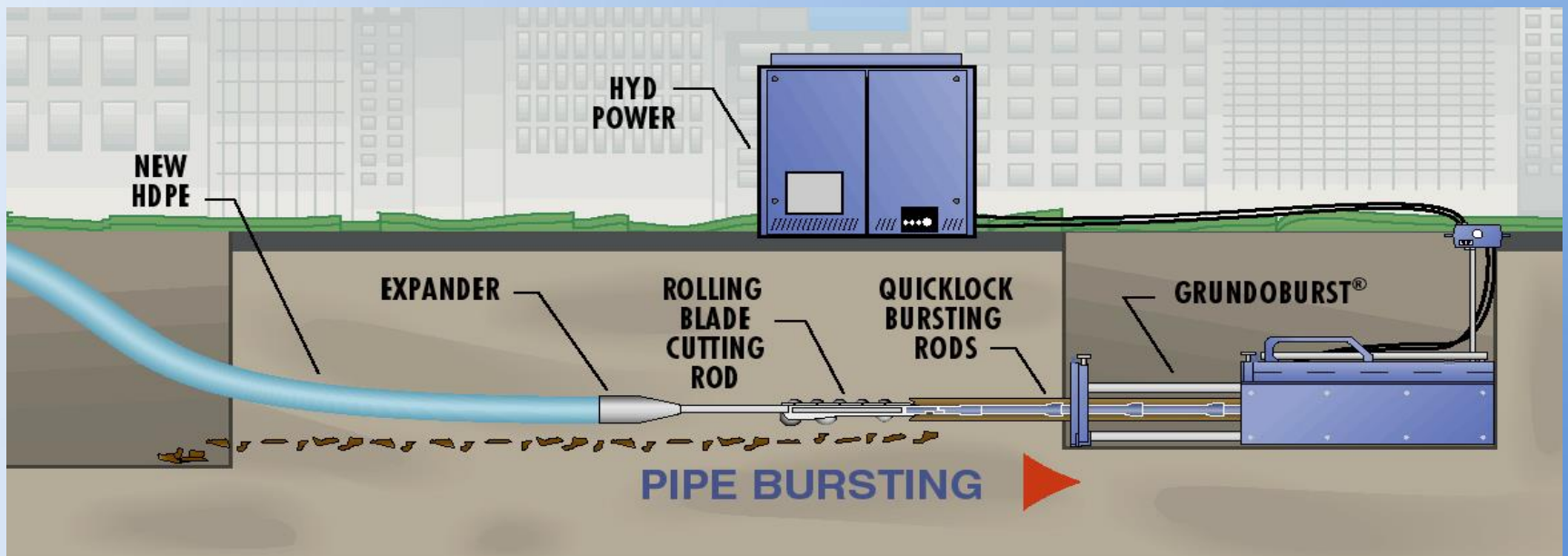
Pipe Bursting vs. Open Cut

- Reduced carbon emissions
- Protection of the environment, trees, landscaping, and other natural ecosystems, particularly developed urban and suburban environments
- New line does not occupy new space in the right-of-way
- Reduced traffic impacts
- Reduction in damage prevention to third-party utilities
- Substantially reduced amount of excavation



Benefits of Pipe Bursting

- Economic Benefits
- Social Benefits
- Environmental Benefits



Pipe Bursting Project Non-Invasive to Residents: Social Benefits



- Bypass pumping eliminated through accepted outages
- 300-400 lf per day of bursting production
- 2-3 month project duration for urban neighborhoods minimizes resident impact
- Minimal Excavations compared to open-cut or directional boring
 - Reduces restoration costs and time
 - Reduces time construction crews are present in front of residents

Benefits of Pipe Bursting: Environmental Benefits

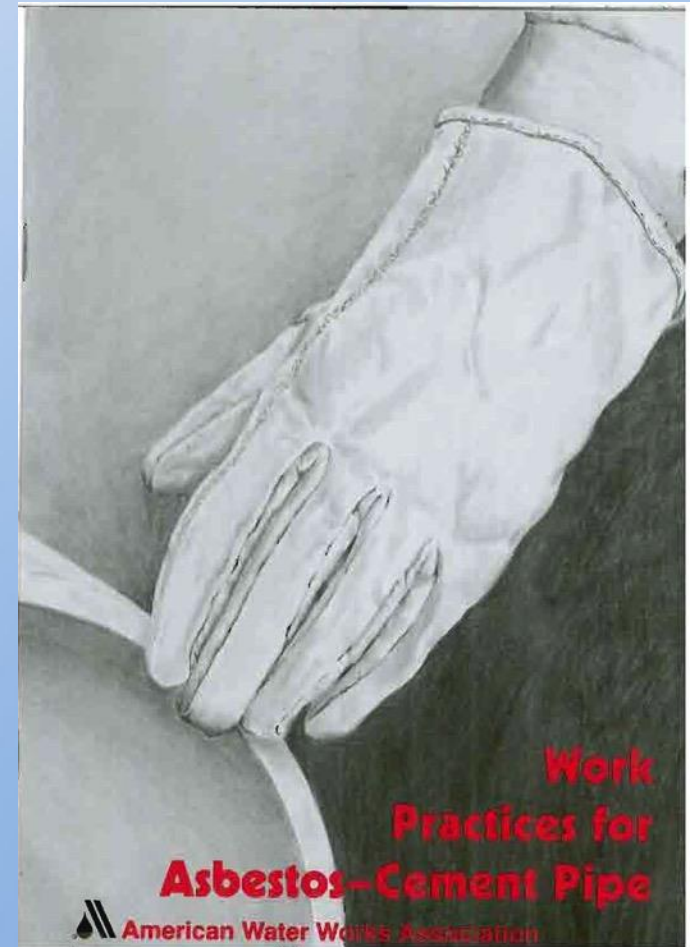
- Reduced excavation minimizes environmental footprint
- Reduced carbon dioxide emissions from less machinery and shortened construction schedule
 - Pipe bursting is found to reduce greenhouse gas emissions over traditional open cut by 75-90%
- Reduces infrastructure congestion





AWWA Work Practices for AC Pipe

- Keep the AC pipe wet
- Don't saw cut the AC pipe to release fibers
- Utilize a snap cutter on the AC pipe



Asbestos Fibers During Rehabilitation

- Work during several recent pipe bursting projects in Florida performed an extensive Negative Exposure Assessment on the pipe bursting project
- Results indicated levels of asbestos ***under*** the limits set by OSHA



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- ***National Emissions Standards for Hazardous Air Pollutants***
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National Emissions Standards for Hazardous Air Pollutants

- Promulgated in 1972
- Part 61 governs 7 key air pollutants
 - Asbestos, Beryllium, Mercury, Vinyl Chloride, Benzene, Arsenic, Radon/radionuclides
- Requires an Act of Congress to change
- Does not provide adaption for technology development
- Does allow for an Administrator Approved Alternate as approved process different from regulations

NESHAP Compliance – 5 Key steps

- Notice Submit 10 days prior to work (61.145(b))
- Emission Control during work (61.145(c) / 61.150)
- Control Public Access 2' of cover or fencing (61.151 / 61.154)
- Deed Notation for site after work is complete (61.151(e))
- Notice Prior to Digging Up Site 45 days before digging up the site (61.154(j) / 61.1(d))

WRF #4465 - Environmental Impact Analysis

- Measured the asbestos in air, water, and soil



Environmental Impact of AC Pipe Bursting – WRF Project #4465

There is no evidence to support that the bursting of AC pipe has any negative impacts on the environment or the workers performing the work

Sample Type	No. of Samples	Analytical Sensitivity Range	Sample Result Range	Analytical Method
Air	6	0.0036 - 0.0042 s/cc	BAS	ISO Method 10312
Soil (Pre-renewal)	6	NA	ND - Trace (<0.25% visual estimate)	EPA Method 600/R-93/116
Soil (Post-renewal)	6	NA	ND - Trace (<0.25% visual estimate)	
Water (Pre-renewal)	2	0.17 - 0.35 million structure/L	0.87 - 20.07 million structure/L	EPA Method 100.2
Water (Post-renewal)	2	0.08 - 0.09 million structure/L	0.09 - 0.94 million structure/L	

Mitigation of Exposure Risk Utility Crossings

- Occur when other utility companies are required to perform work around remaining AC pipe fragments
- Utility companies will not perform extensive excavation within a few inches of the new HDPE pipe

The reality is - all work performed will be below the 260 linear feet threshold set forth by NESHAP

Mitigation of Exposure Risk

Resident Excavation

- Resident installing new tree or other will not excavate to water main depth for extended length

The reality is - all work performed will be below the 260 linear feet threshold set forth by NESHAP



Mitigation of Exposure Risk

Replacement of Production Pipe

- Utility provider performing AC pipe bursting must acknowledge the risk of future work required around AC pipe fragments
- Emergency repairs will be below the 260 linear feet threshold set forth by NESHAP
- Focused production pipe replacement will occur after production pipe has expelled its service life

The reality is - all work performed will be below the 260 linear feet threshold set forth by NESHAP

Potential Exposure During Rehabilitation

- Greatest threat of exposure is during pipe bursting activities
- Occupational Health and Safety Administration (OSHA) controls work practices with potential for asbestos fibrous release
- OSHA 1926.1101 provides guidance on monitoring asbestos fiber release

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- ***NapaSan Bay Area Air Quality Management District Compliance Procedure***

Bay Area Air Quality Management District

- Adopted all parameters of NESHAP
- Regulation 11 Hazardous Pollutants, Rule 2, Asbestos Demolition, Renovation and Manufacturing
- 2006 Compliance Advisory Stating Asbestos Control Requirements for Pipe Bursting and Pipe Reaming

NapaSan BAAQMD Compliance Procedure

- Submit the 10-day notification form
- Record the GPS coordinates for all AC pipe excavation pits and provide to BAAQMD
- NapaSan tracks all locations of AC pipe fragments in the GIS system
- Pay notification fee
- All spoil materials handled as RACM
- NapaSan creates specifications indicating safe handling procedures

NapaSan BAAQMD Compliance Procedure

- NapaSan responds to all “Call 811” requests accurately locating the pipe
- Future excavations require notification and safe handling
- Maintain at least 2’ of cover over the remaining AC pipe fragments
- NapaSan passes a resolution recording the project details
- NapaSan is responsible for all safe excavations required in the future

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- History of asbestos
- Pipe bursting
- National Emissions Standards for Hazardous Air Pollutants
- Bay Area Air Quality Management District Regulations governing AC pipe handling